

# ASNE DAY 1999



## Pollution Prevention COTS Equipment: Lessons Learned and Return on Investment

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# Presentation Outline

*Pollution Prevention (P2) Afloat*

- Program Objectives
- Program Approach
- Implementation Strategy
- Summary

# Program Objectives

## *Pollution Prevention (P2) Afloat*

- Achieve results using shipboard commercial off-the-shelf (COTS) equipment:
  - Reduced HM procurement costs
  - Reduced HM offload costs
  - Labor savings
  - Improved safety and health for operators
- Meet P2 requirements of EO 12856
- Implement proven solutions in the Fleet

# Program Approach

## *Pollution Prevention (P2) Afloat*

- Conduct P2 Assessments on prototype ships
- Test, evaluate, and re-engineer COTS equipment aboard ship
- Determine COTS equipment ROI
- Transition successful equipment to the Fleet

# Program Approach: Prototype Ships

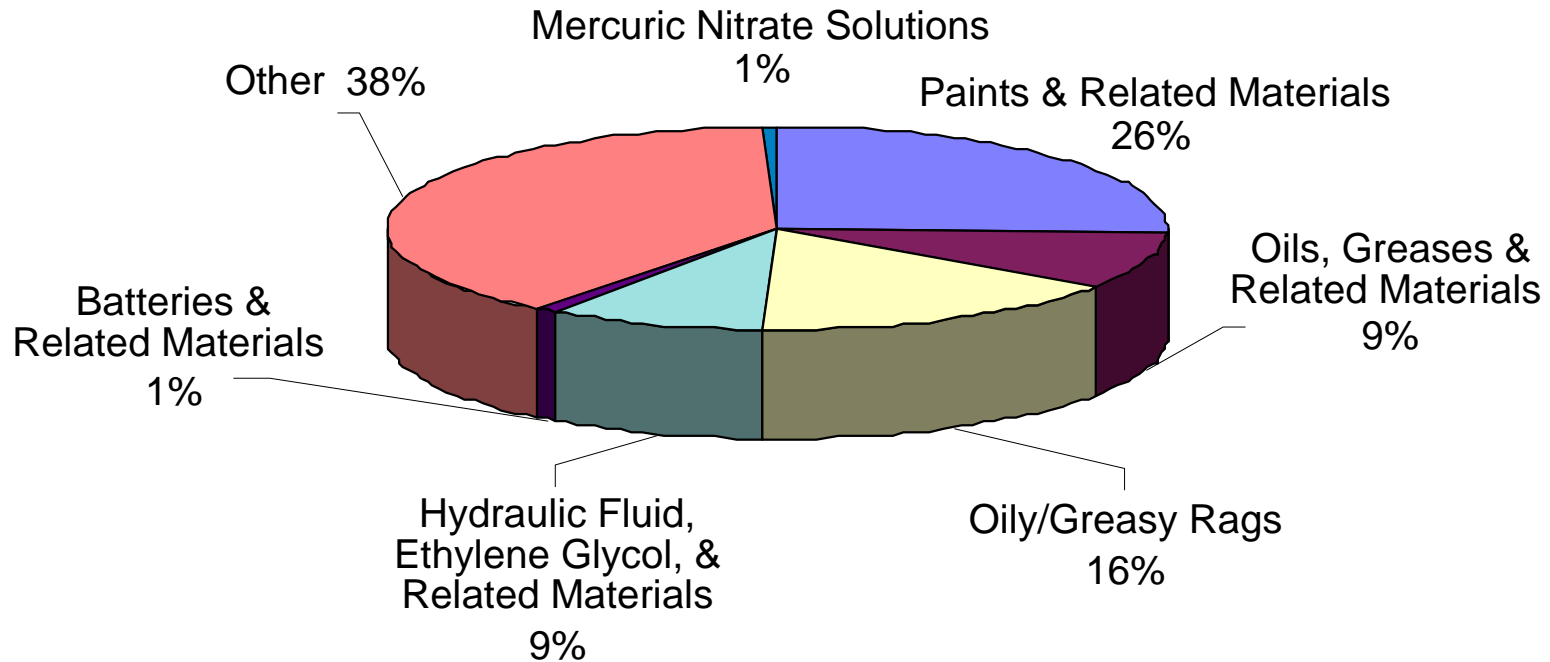
## *Pollution Prevention (P2) Afloat*

- **USS CARL VINSON (CVN 70)**
- **USS WASP (LHD 1)**
- **USS KEARSARGE (LHD 3)**
- **USS JOHN HANCOCK (DD 981)**
- **Norfolk SPRUCE Barge (YFNX 42)**
- **New London SPRUCE Barge (YFNX 40)**
- **USS YORKTOWN (CG 48)  
(East Coast Smart Ship)**
- **USS RUSHMORE (LSD 47)  
(West Coast Smart Ship)**
- **USS ARCTIC (AOE 8)**

# Program Approach: P2 Assessments

*Pollution Prevention (P2) Afloat*

## Targeted Shipboard Hazardous Materials



Derived from Naval Station Norfolk HW Offloads FY95 & 96  
Percentages by weight

# Program Approach: COTS

## *Pollution Prevention (P2) Afloat*

### Examples of COTS Equipment

PROCESS	HAZMAT	P2 COTS EQUIPMENT	SHIPBOARD REQUIREMENTS
Parts cleaning	<ul style="list-style-type: none"><li>• Solvent</li><li>• Rags</li></ul>	Aqueous Parts Cleaner	Gaskets and water containment
Painting bulkheads	<ul style="list-style-type: none"><li>• Paint</li><li>• Rags</li><li>• Brushes</li></ul>	HVLP Paint Guns	Nozzle attachments to reach tight spaces
Coolant change-out	<ul style="list-style-type: none"><li>• Ethylene glycol</li></ul>	Glycol Recycler	Portable unit
Powering GSE and small craft	<ul style="list-style-type: none"><li>• Batteries</li><li>• Electrolyte</li></ul>	Maintenance-Free Batteries	Reconfigured charging posts
Cable cleaning	<ul style="list-style-type: none"><li>• Solvent</li><li>• Rags</li></ul>	Cable Cleaner/Lubricator	Pneumatic power

# Program Approach: ROI

## *Pollution Prevention (P2) Afloat*

Costs included in P2 Afloat ROI Analysis:

- Procurement
- Installation
- Operation & Support
  - Consumables
  - Labor
  - Hazardous Waste Disposal



But, does not include:

- R&D and Equipment Disposal



# Program Approach: ROI

## *Pollution Prevention (P2) Afloat*

### Assumptions:

- Typical Equipment Service Life is Ten Years
- P2 Process is Comparable to Baseline Process

### Transition Decision Factors:

- Break-Even Point is Three Years or Less
- Reduced HM Procurement
- HM Offload Savings
- Improved Safety, Health, QOL

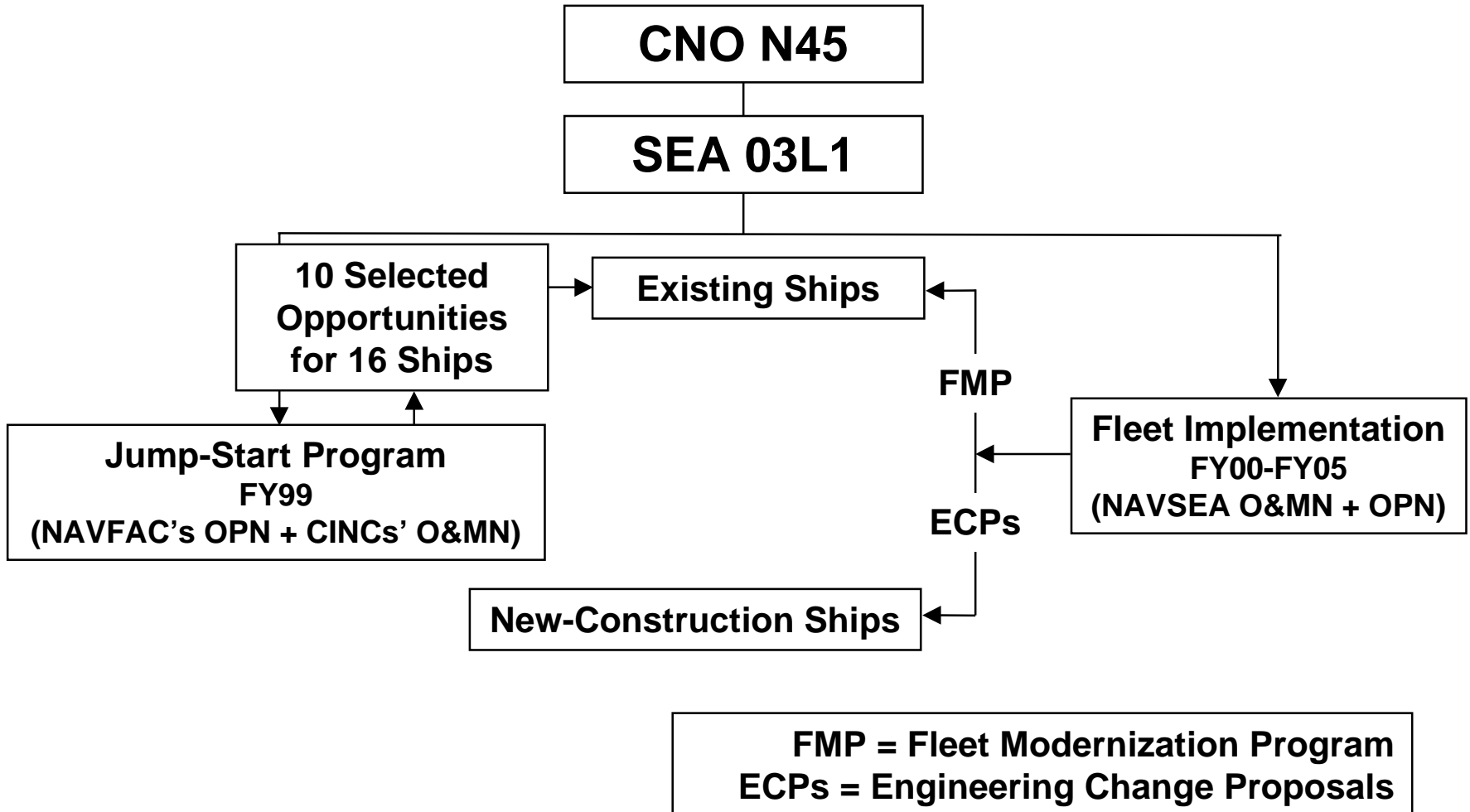
# Program Approach: ROI

## *Pollution Prevention (P2) Afloat*

<b>P2 COTS EQUIPMENT</b>	<b>BREAK-EVEN POINT (YRS)</b>	<b>TRANSITION DECISION</b>
<b>Aqueous Parts Washer</b>	<b>2.0</b>	<b>Yes</b>
<b>HVLP Paint Guns</b>	<b>0.1</b>	<b>Yes</b>
<b>Glycol Recycler</b>	<b>2.0</b>	<b>No</b>
<b>Maintenance-Free Batteries</b>	<b>1.3</b>	<b>Yes</b>
<b>Cable Cleaner &amp; Lubricator</b>	<b>0.1</b>	<b>Yes</b>

# Implementation Strategy

## Pollution Prevention (P2) Afloat



# Implementation: Jump-Start Mechanics

## *Pollution Prevention (P2) Afloat*

In FY99:

- Conduct ship checks
- Develop logistics packages
- Institutionalize implementation process
- Establish procurement contracts
- Install partial suites of equipment
- Identify lessons learned

# Implementation: Jump-Start Ships

## *Pollution Prevention (P2) Afloat*

16 Ships representing 10 Classes

- Classes include

CG 47	DDG 51	CVN 68	LHD 1	AOE 6
DD 963	LHA 1	FFG 7	LPD 4	LSD 49

- Selection Criteria

- Pierside Availability
- Mix of prototyped classes and new platforms
- Installation cost

# Implementation: Jump-Start Equipment

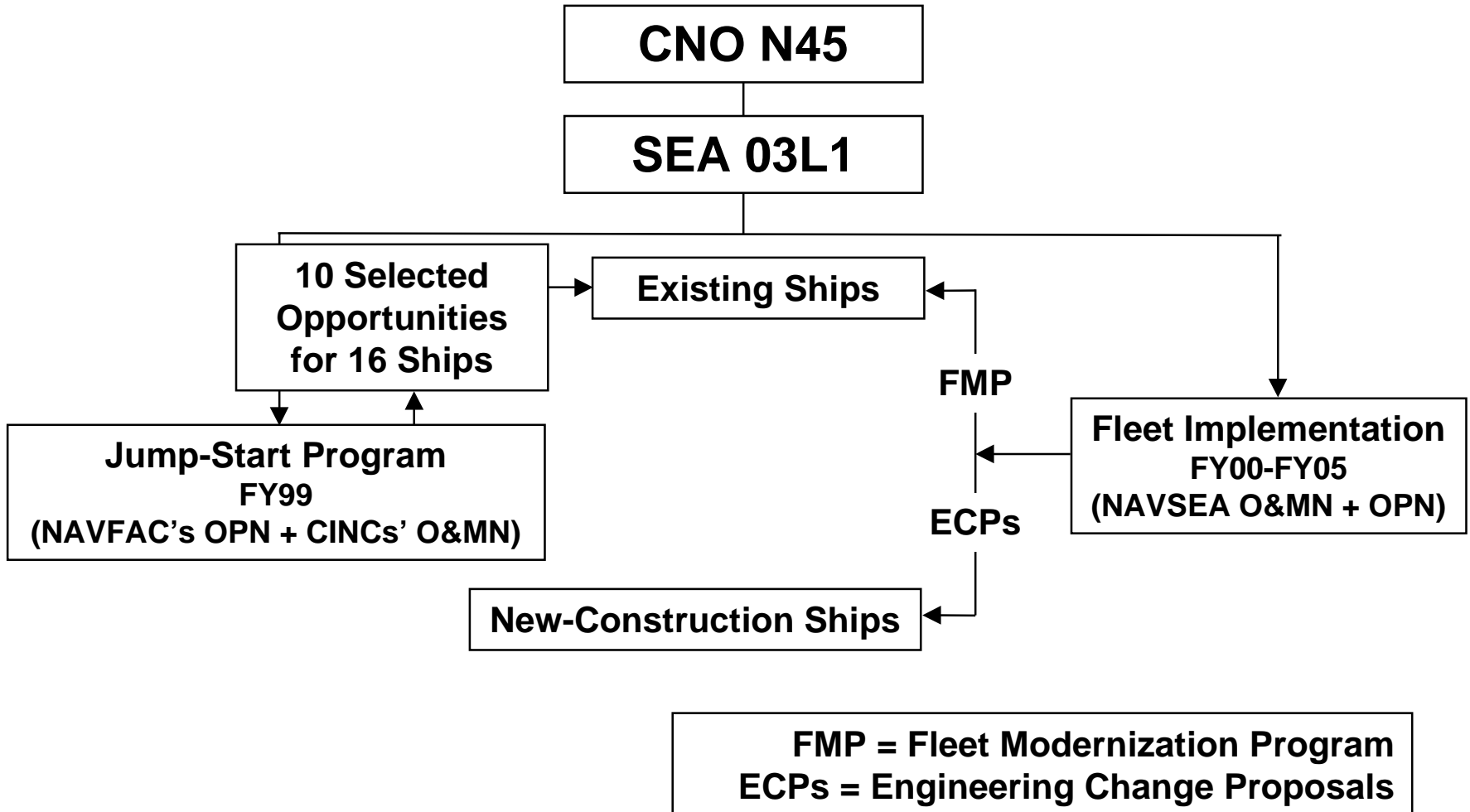
## *Pollution Prevention (P2) Afloat*

### Ten P2 Opportunities

- Paint Dispenser
- Brush Holder
- Paint Gun Cleaning Station
- HVLP Paint Guns
- Mercury Ion Exchange Cartridge System
- Maintenance-Free Batteries
- Hand Pumps & Spray Bottles
- Cable Cleaner & Lubricator
- Large Aqueous Parts Washer
- Top-Loading Aqueous Parts Washer

# Implementation Strategy

## Pollution Prevention (P2) Afloat



# Implementation: Full Equipment Suite

## *Pollution Prevention (P2) Afloat*

### **Paint-Related Opportunities**

- Paint Dispenser
- Paint Brush Holder
- HVLP Paint Gun
- Paint Gun Cleaning Station
- Vacuum Sanding System
- Backpack Vacuum

### **Rag Reduction**

- Cable Cleaner and Lubricator
- Rag Recycling System
- Pneumatic Vacuum
- Explosion Proof Vacuum
- Pressure Washer

### **HM Management**

- Hand Pumps & Spray Bottles
- In-Drum Compactor
- Drum-Level Indicator
- Hand Wipe
- Grease Gun Management

### **Solvent Reduction**

- Aqueous Parts Washers

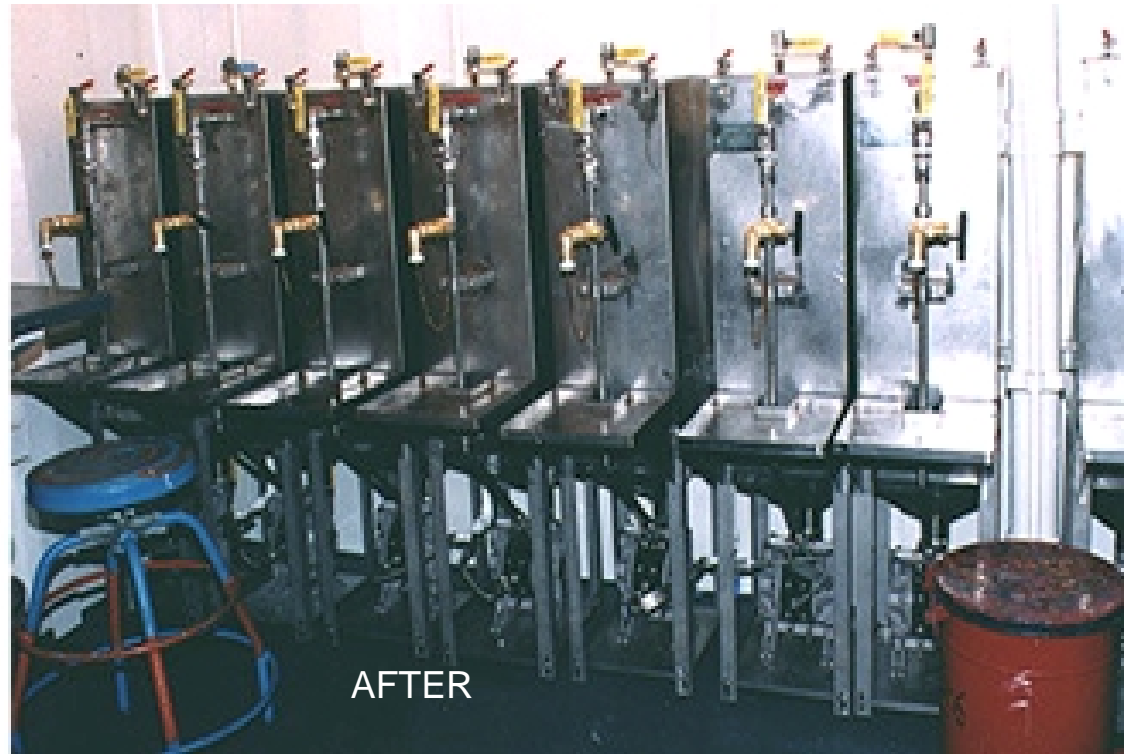
### **Miscellaneous**

- Mercury Ion Exchange Cartridge System
- Maintenance-Free Batteries
- Electronic Cooling Gun



# Paint-Related Opportunities

*Pollution Prevention (P2) Afloat*



**PAINT DISPENSER**

# Paint-Related Opportunities

*Pollution Prevention (P2) Afloat*

## HIGH-VOLUME LOW PRESSURE SPRAY GUN



# Paint-Related Opportunities

*Pollution Prevention (P2) Afloat*

## PAINT GUN CLEANING STATION



# Paint-Related Opportunities

*Pollution Prevention (P2) Afloat*

**PAINT  
BRUSH  
HOLDER**



# Paint-Related Opportunities

*Pollution Prevention (P2) Afloat*



**VACUUM SYSTEMS**



# Summary

## *Pollution Prevention (P2) Afloat*

Moving aggressively to reduce Fleet HM lifecycle costs

- Combining deck-plate testing and evaluation, Navy-wide experience, and engineering analysis
- Jump-starting installation process in FY99
- Installing suites of equipment throughout the Fleet in FY00-05
- Continuing T&E for new P2 Opportunities

***Meeting the P2 Challenges of the Fleet in the Next Millennium***

# Points of Contact

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Websites:

<http://www.dt.navy.mil/code60/code63/code632/index.htm>

<http://www.navyseic.com>